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I, LEANNE MYNOTT, MANAGER EXAMINATION SUPPORT AND
SALES hereby certify that annexed is a true copy of the Provisional specification
in connection with Application No. PS 3014 for a patent by REX WILLIAM
FRANCIS as filed on 18 June 2002.



WITNESS my hand this
Third day of July 2003

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BEST AVAILABLE COPY

REX WILLIAM FRANCIS

AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED

"IMPROVEMENTS IN ANCHORS"

This invention is described in the following statement:-

The present invention relates, in general terms, to improvements in anchors or means for anchoring. More particularly, but not exclusively, the invention relates to an improved form of anchor suitable for use in a variety of different contexts, for achieving effective anchoring regardless of the nature of the holding (be it sand, rock, coral or the like), whilst at the same time allowing for ready release and re-setting of the anchor as and when desired.

For ease of explanation, throughout the ensuing specification reference will be made to an especially preferred embodiment of an anchor in accordance with the present invention, to be utilised for the purposes of anchoring a boat or the like water-borne vessel at any give locale. It should be realised, however, that an anchor in accordance with the present invention is equally suited for other purposes than for the mooring of boats, as by way of example the permanent or temporary mooring of buoys, drilling rigs and/or the like.

In particular the present invention relates to an improvement in the anchor disclosed in the present applicant's Australian Patent No. 734943.

The situation often arises wherein there is a need to anchor or moor boats, buoys, drilling rigs and/or any other form of vessel or water-borne body, either permanently or temporarily, in a given position. That need may, in turn, given rise to problems in that, dependent upon circumstances and actual location, it has become necessary to anchor or moor such vessels or other bodies in different types of holdings. An anchor which might be particularly suitable for one type of holding, as for example sand or mud, need not be appropriate for another, different type of holding, as for example rock or coral. It has sometimes been the practice to utilise a different form of anchor dependent upon the nature of the holding. Up until recently, prior to the advent of the present applicant's SARCA (Registered Trade Mark) anchor, the subject of Patent No. 734943, there had not been available a multi-use, multi-purpose anchor. In the result, and in order to achieve the best or optimum anchoring result, a different form of anchor would need to be deployed dependent upon the nature of the holding. That fact alone gave rise to problems, regardless of the size of the water-borne vessel, craft or the like to be anchored or moored. By way of example only, it was not particularly efficient to have the vessel or craft operator required to change the anchor to a different type dependent upon circumstances and the nature of the holding expected below.

Conventional anchors, if disturbed, can tend to roll over and thereafter be disposed on the ocean/sea/river/lake bottom (or other holding) incorrectly, in effect the wrong way up. In reality prior art anchors, when so disturbed, would lie on their side and have a tendency to stay that way. Quite clearly when so disposed or deployed the efficiency of operation of the overall anchor can be expected to be seriously reduced, a totally unacceptable result. Furthermore, when so deployed there will be a tendency for the anchor to be dragged across the holding, giving rise to disturbance of sand, mud, dislodgment of rock, destruction of coral etc. Such can have a deleterious effect on the overall environment and, if the relevant vessel is being used, for example, for purposes of angling or fishing, such a disturbance to the holding/ocean bottom is again undesirable, since it can be expected to disturb the local sea-life, thereby reducing the chances of anything being caught.

A further problem/disadvantage associated with anchors in accordance with the known art has related to the tendency or possibility of such anchors inadvertently working their way free from the holding, regardless of the nature of such holding. Once an anchor works itself free from its holding, then the vessel associated therewith is totally susceptible to the vagaries of the tides, weather, etc. This can be especially unfortunate if, for example, the crew or passenger(s) of the vessel or craft are not aware of the fact that the anchor has worked loose, as for example if they are sleeping or otherwise occupied. An unanchored vessel can drift alarmingly, dependent upon the tides and prevailing weather conditions, leaving itself liable to all sorts of consequences, as for example beaching, being swept onto rocks or reefs, etc, all such consequences perhaps involving significant danger to the occupants of the vessel.

The present invention seeks to overcome the problems and disadvantages associated with the prior art by providing a form of anchor which: lends itself to ready use regardless of the nature of the holding; includes fewer component parts and is hence both easier and cheaper to manufacture; exhibits an inherent ability to right itself or assume/resume the desired configuration even when disturbed; and yet affords increased safety and security, not to mention ease of overall operation/installation.

In accordance with one aspect of the present invention there is provided an improved anchor, said anchor including: a first fluke preferably having a substantially triangular-shape when viewed in plan, a vertex of said first fluke being adapted to assist in anchorage of said anchor within a given holding; an elongate shank member fixedly
5 attached to said first fluke, said shank member being adapted to receive, and releasably retain, at least one anchor line; and a second fluke associated with said shank member and being adapted to be fixedly connected thereto, said second fluke being spaced apart from said first fluke and disposed substantially parallel thereto, and wherein said second fluke is of a lesser size than said first fluke.

10 In accordance with a further aspect of the present invention there is provided an improved anchor, said anchor including: a first fluke preferably having a substantially triangular-shape when viewed in plan, a vertex of said first fluke being adapted to assist in anchorage of said anchor within a given holding; an elongate shank member fixedly
15 attached to said first fluke, said shank member being adapted to receive, and releasably retain, at least one anchor line; a second fluke associated with said shank member and being adapted to be fixedly connected thereto, said second fluke being spaced apart from said first fluke and disposed substantially parallel thereto; and stabilising means adapted to be attached to said shank member and to both said first and second flukes, wherein said
20 second fluke is of lesser size than said first fluke.

In accordance with another aspect of the present invention there is provided an improved re-settable anchor including: a first fluke preferably having a substantially triangular shape when view in plan, a vertex of said first fluke being adapted to assist in
25 anchorage of said anchor within a given holding; an elongate shank member fixedly attached to said first fluke, said shank member being adapted to receive, and releasably retain, at least one anchor line; a second fluke associated with said shank member and adapted to be fixedly connected thereto, said second fluke being spaced apart from said first fluke and disposed substantially parallel thereto; stabilising means adapted to be
30 attached to said first fluke, said shank and preferably said second fluke, and wherein said second fluke is of a lesser size than said first fluke.

In order that the invention may be more clearly understood and put into practical effect reference will now be made to a preferred embodiment of an anchor in

accordance with the invention. The ensuing description is given by way of non-limitative example only and is with reference to the accompanying drawings, wherein:

FIG. 1 is a top elevational view, from one end, of a preferred embodiment of an anchor in accordance with the present invention;

FIG. 2 is a view, similar to FIG. 1, but from the other end;

FIG. 3 is a top view of the anchor of FIGS. 1 and 2;

FIG. 4 is a side elevational view of the anchor of FIGS. 1 to 3; and

FIG. 5 is a front perspective or end view of a preferred embodiment of the anchor in accordance with the invention.

With particular reference now to the drawings, an anchor in accordance with the present invention, generally designated 1, is preferably of a shape which is substantially symmetrical about a central and vertically disposed plane (see for example FIGS. 3 and 5). The anchor 1 includes a base member or primary fluke 2 which, in the preferred embodiment illustrated, is formed from opposed substantially triangular-shape wing members 3 and 4 (when viewed in plan). Each of these wing members 3 and 4 has, at or in the vicinity of the vertex thereof, a downwardly turned portion 5, shaped so as to extend downwardly from the overall plane of each wing member 3, 4 whereby to provide, at the leading end of the primary fluke 2 (and therefore of the anchor), a portion whose function is to facilitate digging in of the overall anchor into the relevant holding, thereby to ensure proper anchorage therein. At the other end of each wing member 3, 4, in other words that end remote from the tip or vertex and associated downwardly turned portion 5, there is provided a further member 6 projecting upwardly and rearwardly therefrom at an angle other than 90 degrees.

In the preferred embodiment illustrated each wing member 3, 4 has the longest side thereof constituting a free side edge of the overall anchor 1. The wing members 3, 4 are joined together along one side thereof at an angle one to the other. In the preferred embodiment illustrated each wing member 3, 4 is non-planar, with the wing members 3, 4 in fact being disposed at an angle to one another such that, when viewed in end elevation, the base member or primary fluke 2 formed thereby is substantially v-shaped.

The primary fluke 2 is preferably formed from a single sheet of a suitable metal, in any known manner and using any known apparatus. It must be realised, however, that the actual method of construction does not constitute a part of the invention.

5 As shown in the drawings, the respective wing members 3, 4 of the primary fluke 2, and preferably the rearwardly projecting members thereof, each include therein one or more elongate slots or discontinuities 7. Such slots 7 have been found to assist in rapid sinking of the anchor, by allowing the passage of water therethrough. When it is desired to release an anchor from its holding, the existence of these slots 7 assists in
10 breaking of the suction effect which acts to keep that anchor in place, thereby facilitating release of the overall anchor as and when desired. The very existence of these slots 7 can also give rise to a pumping action, more especially when the anchor is in use in rough seas and/or windy weather, in turn allowing for movement of sand, mud and the like from under the anchor whereby to afford an overall better anchorage.

15 Extending substantially laterally of the anchor 1 towards the rear or non-toe end thereof is a bracing member 8. Such bracing member 8 may be either formed integrally with the primary fluke 2 or, more preferably, be associated therewith as by welding.

20 In the preferred embodiment illustrated the anchor 1 in accordance with the present invention includes a shank member, generally designated 9, which is fixably attached to the primary fluke 2 and the bracing member 8 by any suitable means, as for example by welding.

25 In the especially referred embodiment illustrated the shank member 9 includes an elongate arm portion 10 preferably extending substantially parallel to the primary fluke 2 of the anchor 1 and spaced therefrom, and a leg portion 11 attached to the primary fluke 2, with the leg portion 11 of that shank member 9 having a substantial void or discontinuity
30 12 therein. Such void or discontinuity 12 serves to reduce the overall weight of the anchor 1, yet at the same time increases the effectiveness thereof.

Again in the preferred embodiment illustrated an anchor in accordance with the present invention includes means, which are preferably releasably connectable thereto,

which assist in balancing or self-righting of the overall anchor. Preferably such can take the form of a shaped hoop-like member 13, of a substantial semi-circular configuration as shown, which can be either releasably or permanently affixed to the primary fluke 2 in any known manner and using any suitable means.

5

According to one preferred embodiment of the present invention, the self-righting means 13 is fixedly attachable to the primary fluke 2. In an alternative embodiment, not shown, the hoop 13 will be fixed to the anchor using any suitable means, as for example welding.

10

In the preferred embodiment shown the arm portion 11 of the shank member 9 includes a shaped slot 14 extending longitudinally thereof, such slot 14 being adapted to receive, and preferably releasably retain, a shackle or the like means, as for example a D-shackle. The arrangement is such as to operate in the manner described in detail in the present applicant's Australian Patent No. 734943, whereby to allow for automatic re-setting of the anchor as and when necessary.

15

In use, the anchor in accordance with the present invention is intended to be embedded in the relevant holding. In the instance, however, of the anchor becoming disengaged from its holding, then the D-shackle will act to run along the slot 14 until such time as it impacts with the end thereof. In that regard it should be understood that, whilst this procedure of course occupies a finite time, in real terms the D-shackle impacts with the end of the slot 14 with quite a substantial force.

20

In one embodiment, not shown, strategically placed along the length of the arm portion of the shank, at or in the vicinity of the free end thereof, may be a protrusion of any given type and shape (as for example a pin or the like). This protrusion acts, in use, to prevent the D-shackle from moving along or falling down the shank, more particularly along the underside thereof. In that regard it should be realised that, if such was allowed to happen, then a consequence thereof would be that the shackle and its associated chain, cable, chainrope or the like (collectively referred to as anchor line and (not shown) could become jammed or fouled on the shank, hence preventing correct orientation of the fluke (anchor)).

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In an alternative embodiment, the slot 14 is substantially fiat along the entire length thereof, with no sloping intermediate or joining section. Furthermore, and rather than employing a protrusion to prevent jamming or fouling of the D-shackle and its associated chain, a shaped member 21 is provided at or in the vicinity of the end of the shank. This shaped member also acts to prevent the D-shackle from travelling around the free end of the shank.

By virtue of the overall shape and configuration of the anchor which can be seen to have the bulk of its weight at the end thereof remote from the free end of the shank, the impact of the D-shackle against the end of the slot 14 causes (or more correctly forces) the anchor to be tipped up. When in that position or configuration, the D-shackle then runs in the reverse direction along the slot 14, to return to the other end thereof, and causing the overall anchor to be brought back, lifting the back of the anchor, thereby allowing the overall anchor to re-set itself in the holding. It should be realised that this entire operation takes place automatically, without any need for human intervention. This is in marked contrast to the prior art procedures previously employed, which required retraction of the anchor to the surface, and then subsequent re-setting thereof.

The present applicant's arrangement, as illustrated for example in FIG. 1, includes a secondary fluke 20 which is adapted, in use, to extend between the self-righting means 13 and the shank member 9. In that regard in the preferred embodiment illustrated the self-righting means 13 is affixed, at its uppermost extremity thereof, to a rear portion of the shank member 9 by any suitable means and in any suitable manner, as for example by welding. The secondary fluke 20 then extends between that self-righting means 13 and the shank member 9, adapted in use to be disposed substantially parallel to the primary fluke 2.

The arrangement in accordance with the present invention, utilising or employing the secondary fluke, is responsible for a number of important practical advantages when compared with the known art.

Firstly tests have shown that an anchor in accordance with the present invention, when thrown over the side of a vessel, will right itself to ensure that it first lands on the surface of the relevant holding the right way up, thereby to ensure embedding thereof, regardless of the actual spatial disposition of the anchor when first thrown. Such

means that an improved and appropriate anchorage will be achieved regardless of the
"skill" or experience of the person actually responsible for laying out the anchor itself. In
actual fact there is no skill needed in order to achieve a satisfactory result. This is in
contrast to the prior art arrangements.

5

The present applicant's arrangement, by its very configuration, is substantially
proof against the possibility of becoming entangled or caught-up on weed or the like
sometimes resident on a give holding. The secondary fluke acts to prevent mud and other
extraneous and unwanted material from building up on the self-righting hoop means and
associated shank of the anchor, thereby ensuring that the anchor can be readily released
from the holding as and when desired.

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In the present applicant's arrangement the primary fluke is also cut away so as
to be of a smaller overall size when compared with similar prior art arrangements. This
allows the toe end of the anchor to dig in to a given holding quicker and more readily.

15

In the past there have occurred instances wherein an anchor has been dragged
upside down through mud or the like making up the holding. The present applicant's
arrangement, with its spaced-apart first and second flukes, is such that water pressure will
act to assist in lifting of the overall anchor from mud or the like, even in the instance of it
somehow having been disposed the wrong way up therein.

20

Finally it should be understood that the foregoing description refers merely to
preferred embodiments of the present applicant's arrangement and that variations and
modifications will be possible thereto without departing from the spirit and scope of the
invention.

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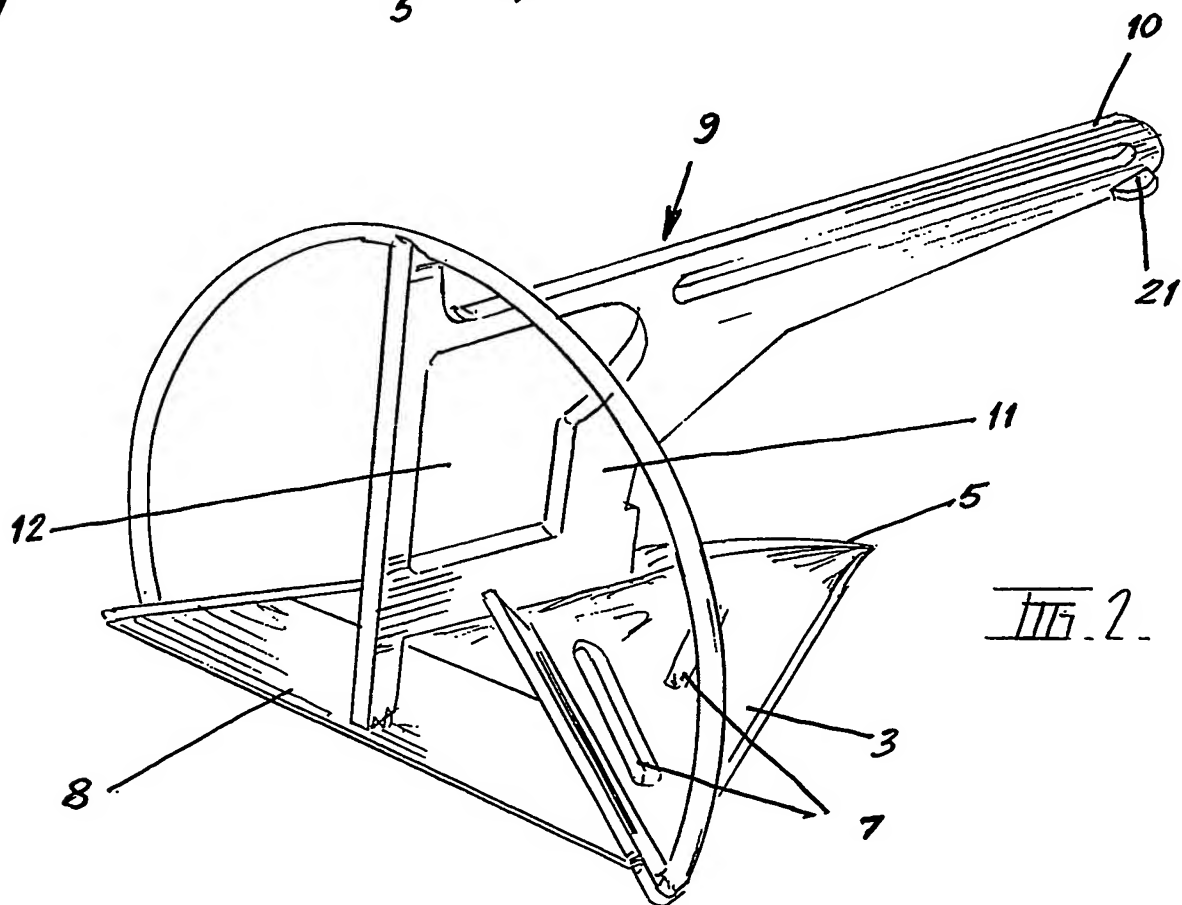
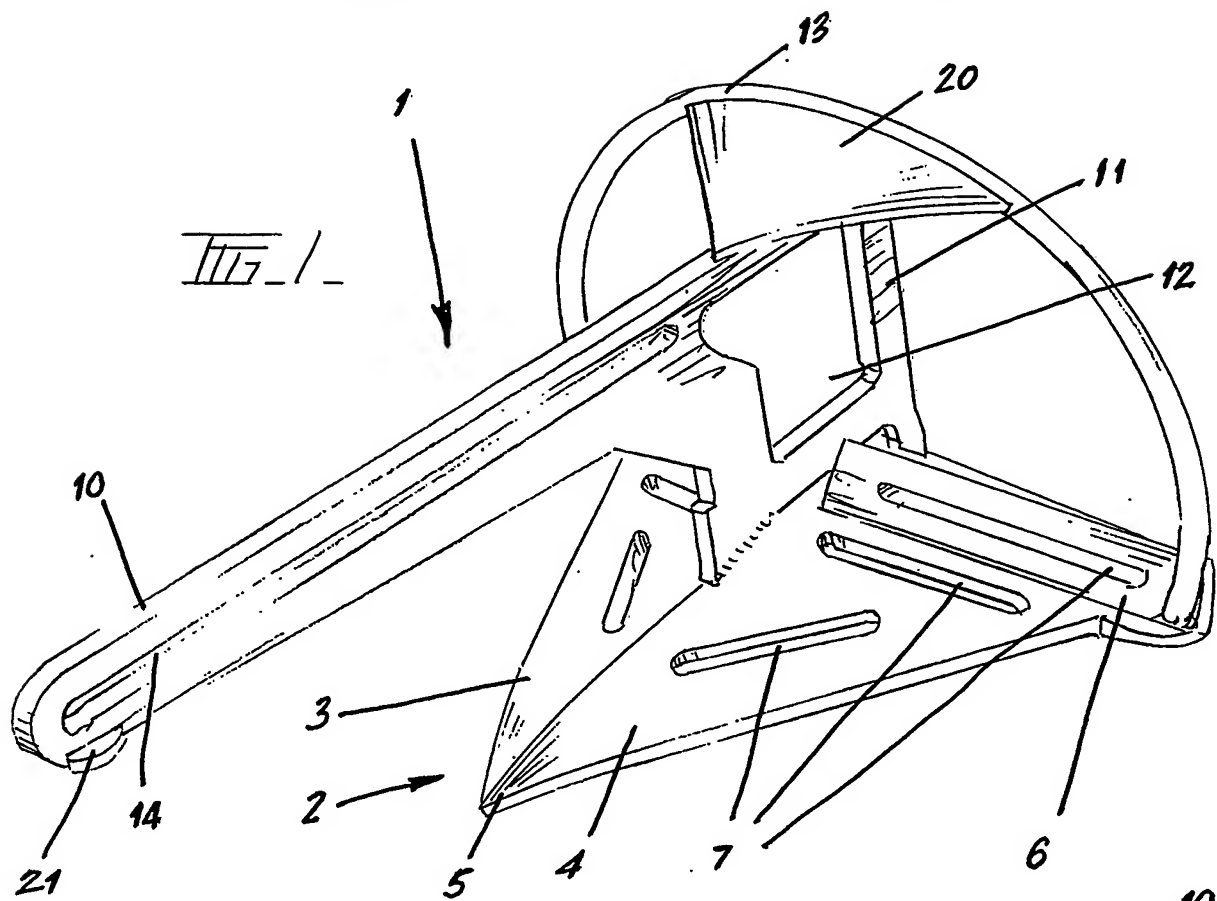
DATED this 18th day of June , 2002

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CALLINAN LAWRIE



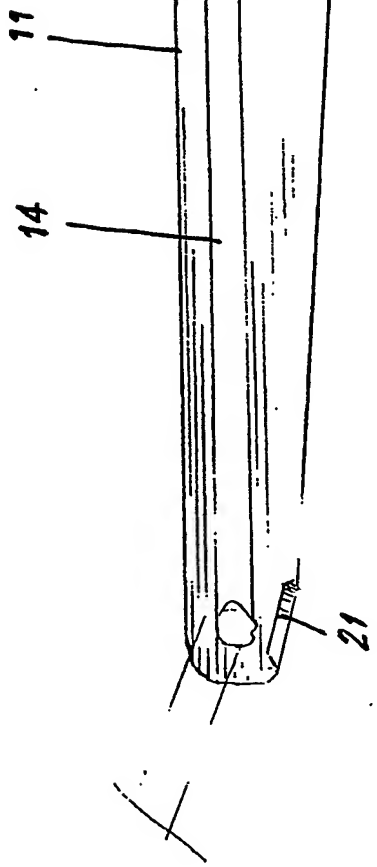


Fig. 4

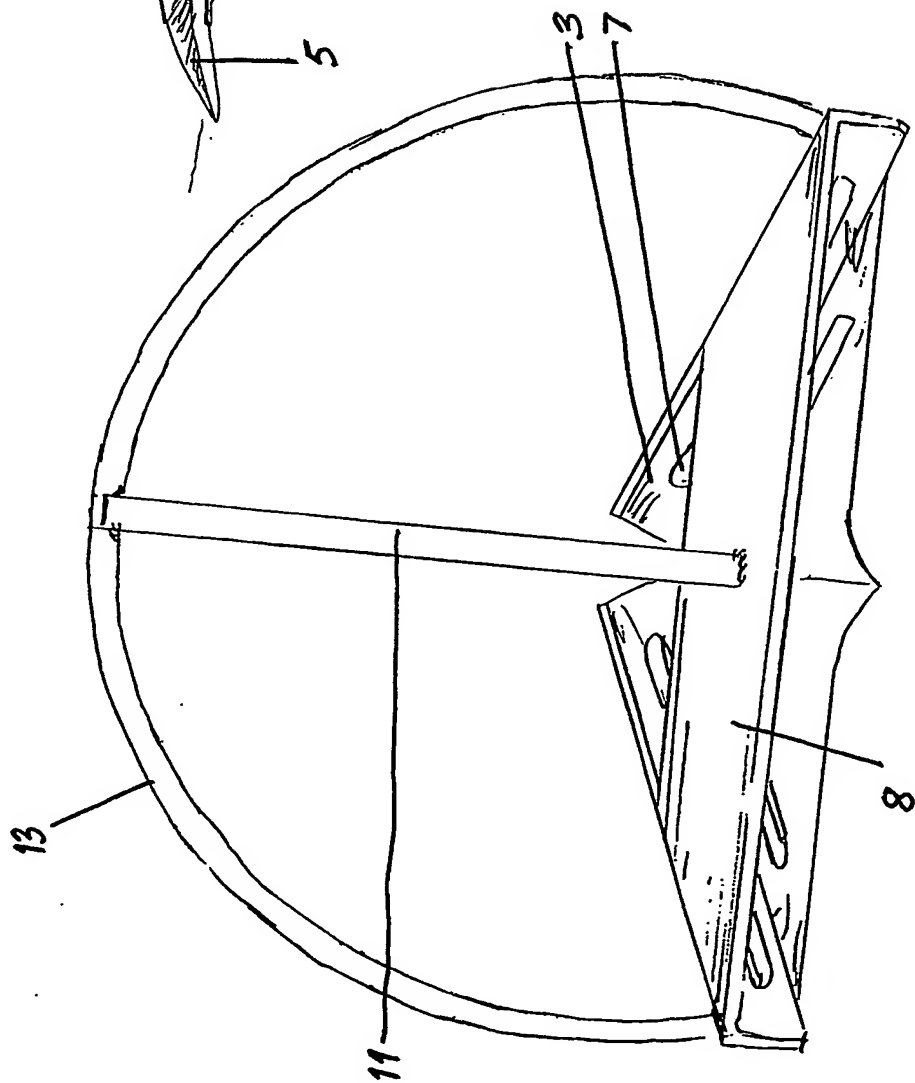


Fig. 5

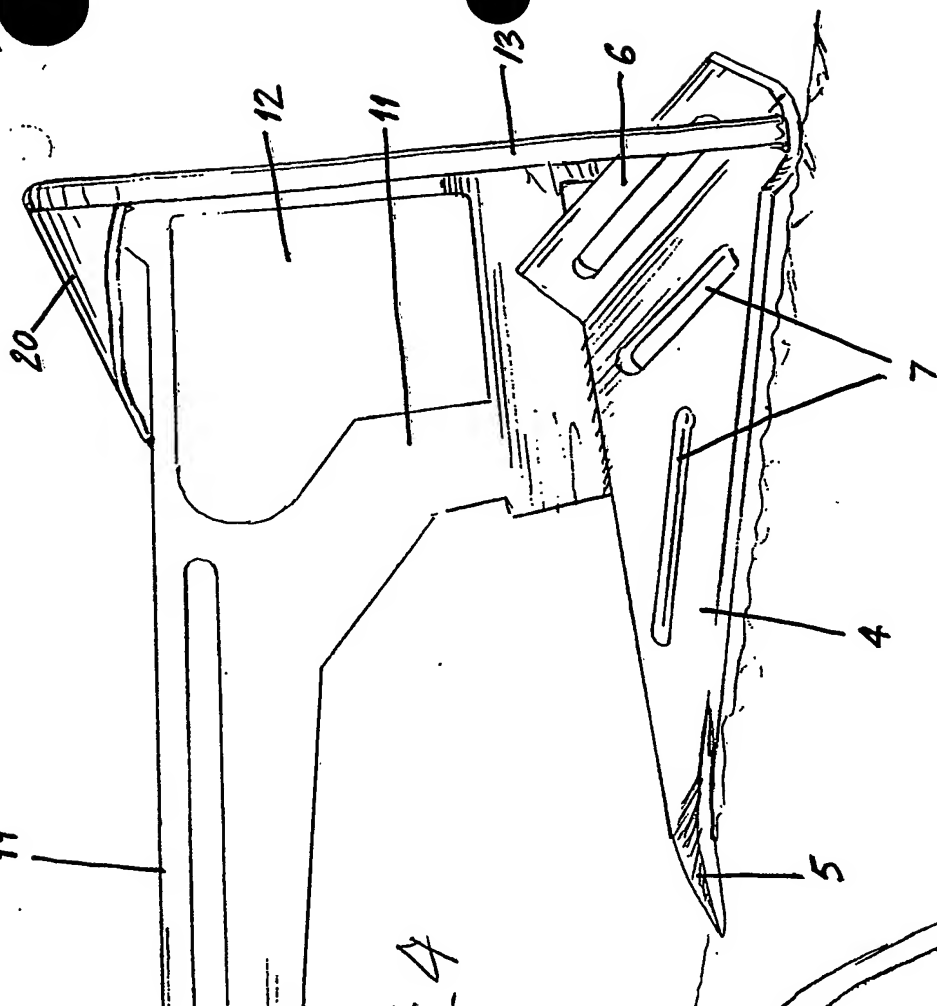


Fig. 6

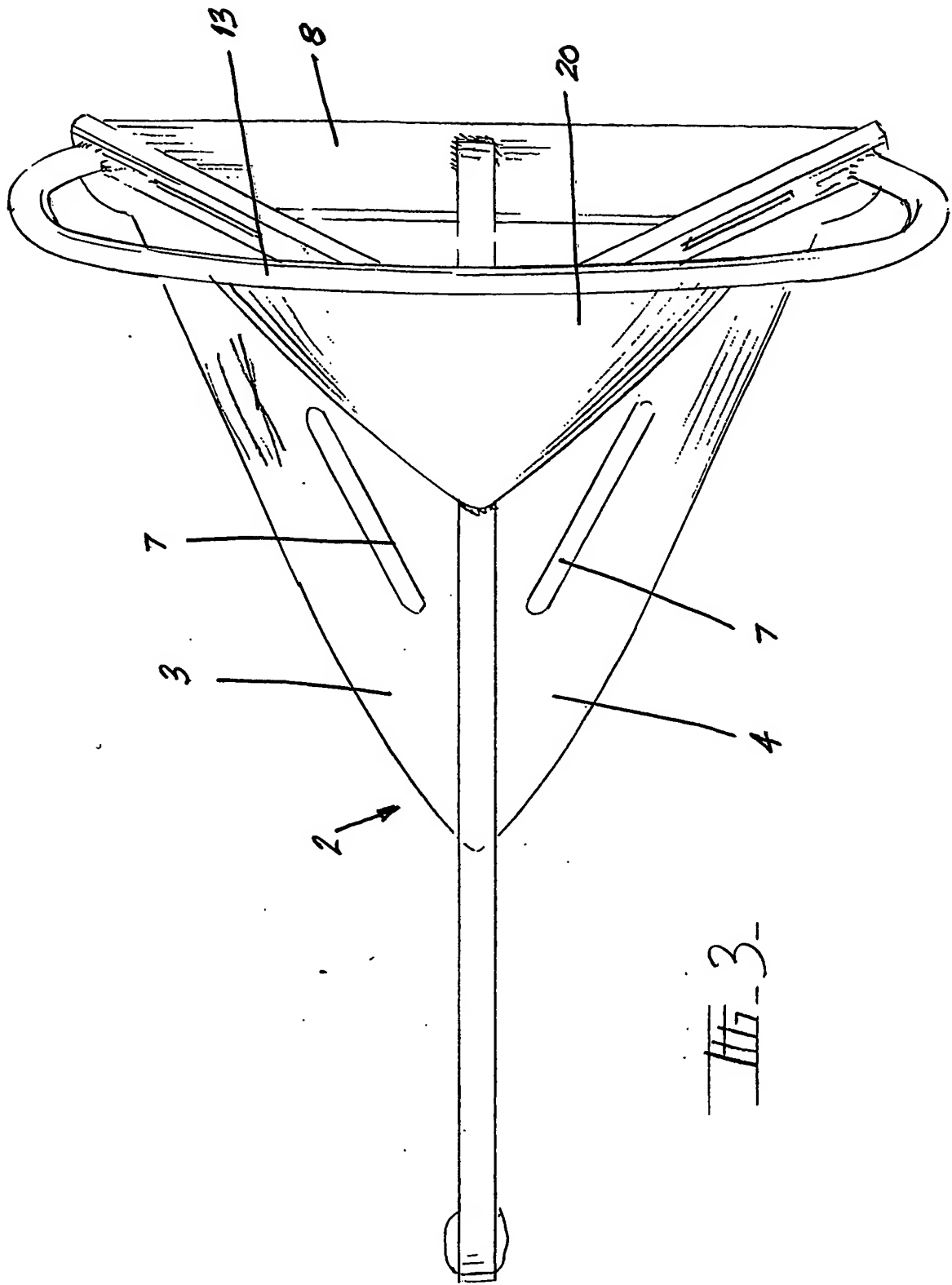


Fig. 3-